

ATR 57 COM

VHF Transceiver



Installation and User manual

Ver. 1.6, Date: January 04



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1 General Information

1.1 Introduction

This ATR 57 manual is a description of the VHF Communication transceiver in 3 parts:

1. General Information
2. Installation
3. Operating Instructions

1.2 Purpose of this equipment

The Filser ATR 57 is a VHF Communication transceiver covering the aeronautical radio frequency range from 118,00MHz to 136,975 MHz in 25 KHz increments with 760 channels.

The ATR 57 was developed to meet all operational requirements encountered in VFR flying. The Communication transceiver is designed as a single block unit with 57mm diameter for instrument panel or consul mounting. It is fastened by four (4mm) screws. All controls and indicating displays are located on the front panel. On the rear panel of the unit the connector (sub D9) for the aircraft wiring is located. The VHF Antenna is connected to the BNC socket.

The volume and squelch level can be selected easily.

The Unit can memorize 9 VHF frequencies for faster access in operation. The Filser ATR 57 also contains a special intercom facility controlled by VOX (Voice Operated X-mission). This is a voice level controlled switch for the headset to turn off the background while no speaking. For good VOX performance identical Microphones should be used in order to guarantee the same input level.

Two Microphones , two Headphones and an additional speaker can be connected to the unit. For Intercom operation with a very different microphones an optional Intercom switch can be installed to turn off the background manually.

1.3 Specification

Frequency range: 118,000 136,975 MHz
Channels: 760
Channel spacing: 25 kHz
Modulation: AM DSB, 70% modulation
Operation modus: alternate talking on one frequency
HF-output power: > 1 Watt
NF-output power: 1 Watt
Voltage: 10,5 V up to 16 V
Current consumption: receiving mode:100mA and
transmitting mode: 1A
Microphone level: 15 mV up to 1V (70% modulation)
Dimensions: 57 x 57 x 160 mm
Weight: 500 g
Certification: Reg. TP 321 ZV 034

1.4 Manufacturer

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2 Installation

2.1 General

The installation of the ATR 57 VHF Communication transceiver depends on the type of aircraft and equipment involved. The instructions given in this chapter therefore apply only generally.

2.2 Pre-installation check

Prior to fitting the new VHF Communication transceiver in the aircraft the equipment must be checked according to the following procedure in order to determine transport damages.

Visual Inspection:

- scratches, corrosion, damaged paintwork
- scratches on the nameplate
- bend of or broken-off pins, mechanical damage to rotor switches.

2.3 Mechanical Panel installation

The ATR 57 should be installed in a way that it can be seen and used by the pilot without any problems. It is designed for instrument panel or control panel installation in the aircraft. The cut-out diameter for placing the ATR 57 in the panel is standard 57mm (see last page). The Unit is fixed in the panel by four (4mm) screws.

Avoid mounting the unit near hot places. Otherwise the unit will need external cooling.

2.4 Installation wiring

Make sure that the room for the installation of the necessary wiring and switches is sufficient.

The cable harness should be as short as possible. Avoid that cables run near strong RF noise sources like the ignition coil, generator, battery charger or anti-collision lights. This can cause a additional noise in the speaker.

The ATR57 has to be protected by an external slow fuse with 2 Ampere

The installation wiring diagrams demonstrate the wiring for single (Fig. 1) and double microphone (Fig. 2) installation with and without Intercom and Headphones.

Your service company can provide all needed cables, the connectors are delivered with your ATR 57.

2.5 Microphone connection

The ATR57 has two microphone inputs :Mic 1 and Mic 2.

- Mic. 1 input for Electret microphone or dynamic microphone with preamplifier (50 mV to 2Vpp adjustable with the Mic. Level control). This input provides a bias voltage of 9V at 330 Ohm. For dynamic microphone a switch (Mic. Setting) located at the top side of the unit (see diagram below) is used to select the input level for 5mV to 10mV without the bias voltage .
Factory setting is Electret.

- Mic 2 input is for Electret microphone only (50 mV to 2Vpp) adjustable with the Mic Level control.

The Mic Level control is located at the top of the unit.

If two Electret microphone are used they must have identical output levels for proper intercom operation, also the Mic Level controls for Mic 1 and 2 are simultaneous.

Factory setting is standard Electret (ECM) microphone (50mV to 2V).

2.5.1 Microphone level check

- To get a reference for a correct MIC-level make sure that the VOX-value is at 16. With a headset the level can be checked, by speaking at the normal distance to the Mic. and increasing the Mic. Level until the VOX turns on and off at a satisfying level (preferably at high background noise)

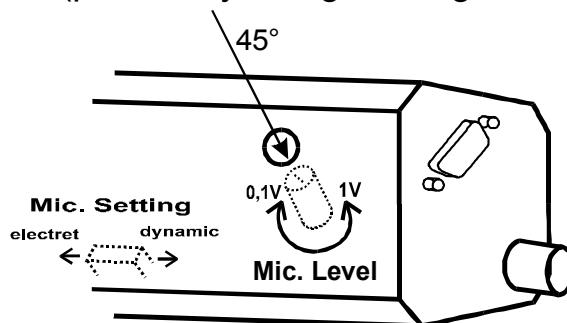


Diagram for Mic Level and Mic Switch

After installation in the aircraft is completed, a radio check should be made and if necessary the Mic Level must be readjusted.

2.6 Intercom mode

With Intercom two crew members can communicate over the ATR 57 system. This communication takes place only internally, there is no transmission.

A special feature is the **VOX (Voice Operated Transmission(x))**.

The Intercom is opened only if one of the crew members is speaking. This avoids having all the time surrounding noise on the headphone.

The opening level for the VOX is adjusted as described in paragraph 3.4.(VOX level control for intercom).

Only if the transmission key (PTT) is pressed, the radio will change to the transmission mode. For best results microphones which produce almost the same output level should be used. The use of very different microphones can lead to the fact, that the member with the lower output level can not open the VOX.

The best solution are identical amplified Electret-microphones.

The optional Intercom switch (for operation without VOX) must be mounted externally. If it is not used the corresponding wire must be connected (switched) to GND.

2.7 Antenna Installation

The ATR 57 requires a normal 50Ω-COM-antenna. Polarisation must be vertical. Using a broad band COM-antenna provides a high efficiency over the entire COM band. The antenna should be installed according to the manufacturers advises.

A 50Ω-coaxial wire (type RG 58) is to be used as an antenna wire.

Some important general advises for antenna installation are listed below:

- Unsymmetrical antennas ($\lambda/4$ -Antenna), length 60 cm, should be mounted on plane metal surfaces or metal plates of at least 50 x 50cm or more. This is not valid for $\lambda/2$ -folded-up antennas



- The antenna should have the maximal possible distance to motor and propeller in order to avoid modulations on the signal.
- The COM-antenna should have the maximal possible distance to the NAV-antenna in order to avoid interference on the transmission.

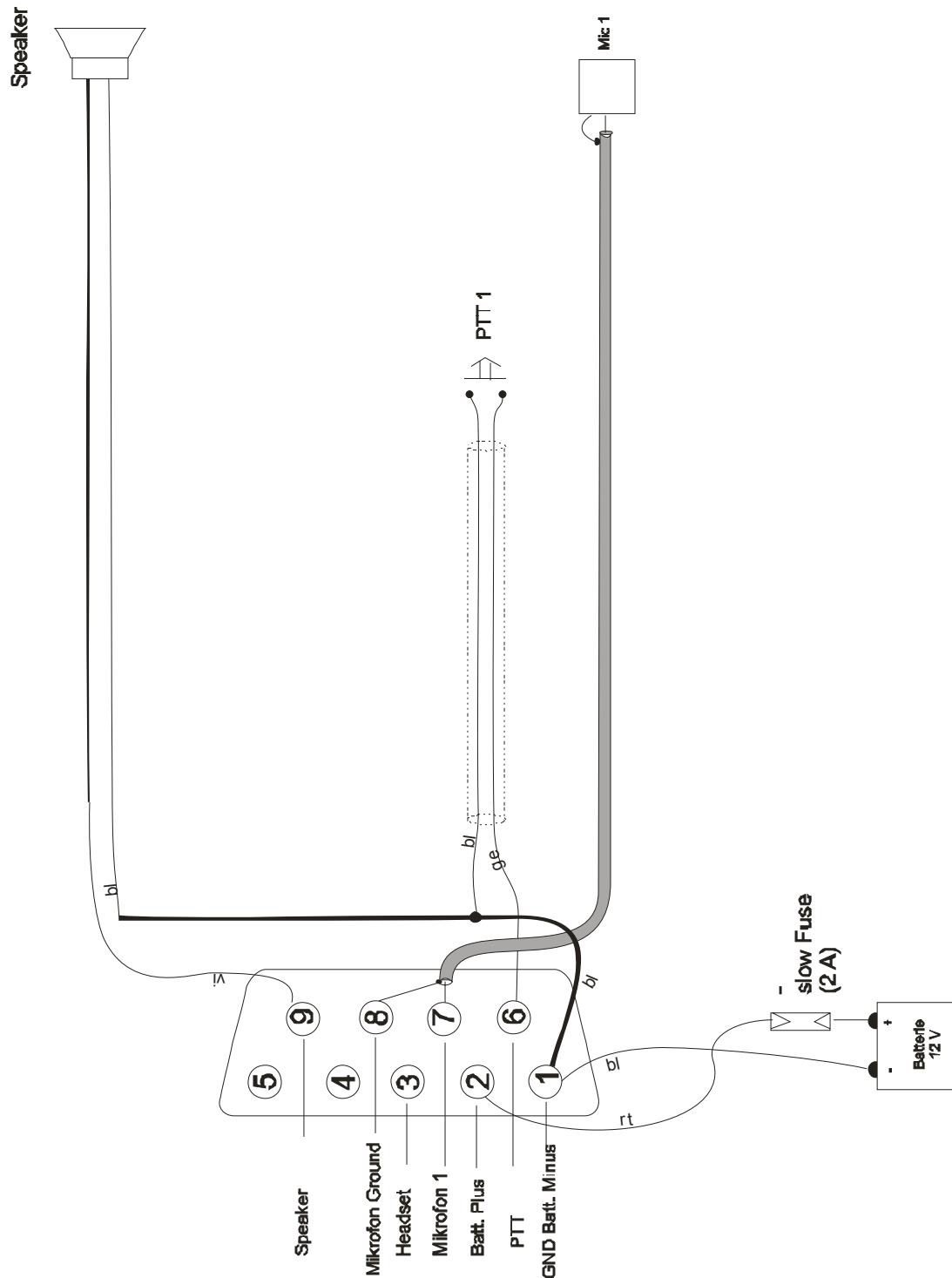


Fig. 1

Installation wiring diagram for glider installation

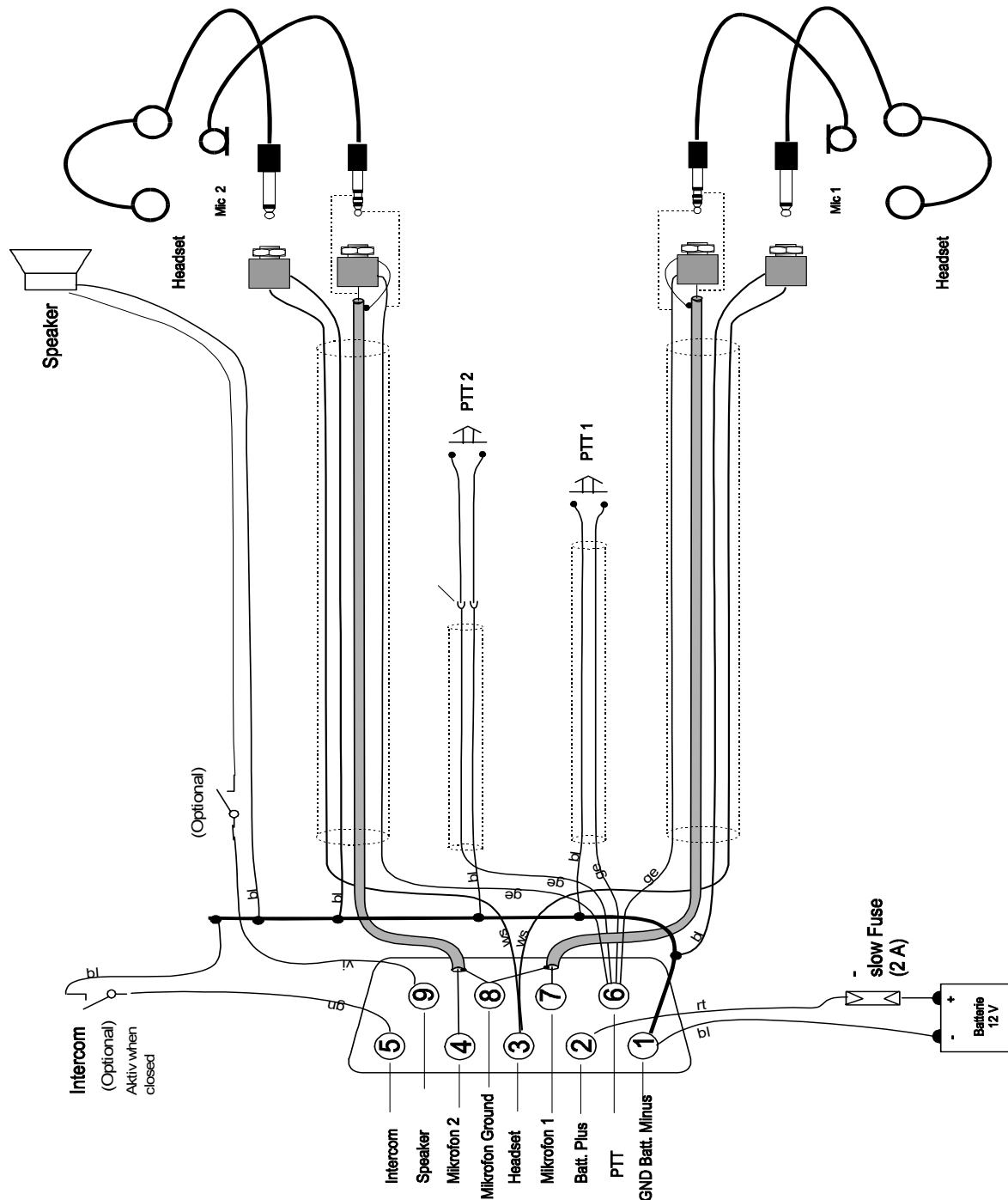


Fig. 2

Installation wiring diagram for double installation with intercom

3 Operation Instructions

All elements necessary for the use of the transceiver are located in the front side of the unit. The regulation of the various levels of the headset microphones are located at the side of the unit (to be adjusted once on the installation).

3.1 Turn on

The „ON-OFF“-switch (2) is positioned on the left side of the unit. The radio is active, when the switch position is in „**ON**“ (upper position).

3.2 Volume control

Push the **VOL-SQ** button once to get into the Volume mode (Display shows **VOL: 01** to 33). By turning the tuning knob (4) the Volume can be varied. The Volume mode is left by selecting another frequency by **MEM** or if the **VOL-SQ** button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the Volume mode is active. For confirmation the ATR 57 shows „**ST**“ in its display.

3.3 Squelch level control

The squelch eliminates noise in case of missing reception signals. On normal operation mode the squelch should be regulated in a way that it eliminates noise of the receiver in case of no reception signal. The normal level is between 1 and 2 (shown on the display).

The higher the squelch level chosen, the more weak signals (far away) are eliminated. In this way weak signals of transmissions on the same frequency can be switched off.

Push the **VOL-SQ** button twice to get into the Squelch mode (Display shows **SQ: 01** to 16). By turning the tuning knob (4) the Squelch setting can be varied. The Squelch mode is left by selecting another frequency by **MEM** or if the **VOL-SQ** button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the Squelch mode is active. For confirmation the ATR 57 shows „**ST**“ in its display.

The normal Squelch setting is about 3. With higher settings weak signals may not be heard. The Squelch setting has no influence in the intercom mode.

3.4 VOX level control for Intercom

VOX signifies **V**oice **O**perated trans-**X**-mission.

In this case it refers to the switching-on of the headsets, not to the transmission. Task of the VOX-function is to eliminate the background (cabine) noise during the Intercom mode while not speaking.

An electronic switch opens the headsets when the selected volume is reached. To assure correct function of this installation headsets with nearly identical microphones should be used. Otherwise the VOX level control can be substituted by a separately installed intercom switch.

ATTENTION: If the Intercom switch is not installed the corresponding signal wire must be connected to the mass.

Hand-microphones whose transmission buttons also switch off the microphones are not meeting the requirements of the intercom mode.

Push the **VOL-SQ** button three times to get into the Intercom mode (Display shows **VOX: 01** to 32). By turning the tuning knob (4) the Intercom setting can be varied. The Intercom mode is left by selecting another frequency by **MEM** or if the **VOL-SQ** button is pressed again. The selected level is active until the ATR 57 is switched off. To use this level as switch on default, push the **STORE** button (6) while the Intercom mode is active. For confirmation the ATR 57 shows „**ST**“ in its display.

The higher the selected level is, the louder you have to talk to open the Intercom path.

Note: The Volume control described in 3.2 adjusts only the received signal and not the Intercom level.

3.5 Memory selector

The memory selector **MEM** (7) is located in the upper middle of the unit. It is used for selecting previous stored frequencies or for saving a frequency (9 memories).

3.6 Selecting and storing a frequency

Turn the memory selector in the **SET** position between memory MEM1 and MEM9 (the white line on the memory selector shows downward). The upper line of the display shows the actual active frequency, in the second line a changeable frequency (stand-by) is displayed >.

Setting a new Frequency or changing an existing Frequency

The standby Frequency (lower column) can be changed in the following way:

- With the ↔ button (3) select MHz- or kHz . A small arrow > on the display (9) shows to MHz- or kHz that can be changed by the big frequency knob (4).
- With the ↑↓ button on the lower right side (5) this new frequency can be activated. Now it is displayed on the upper line, the old active frequency is deactivated and displayed in the second line.

So it is possible to change the two frequencies by pushing one button.

Storing a Frequency

Turn the memory selector **MEM** (7) to **M** 1... 9 where the new frequency is to be stored. Factory setting of the memories are test frequencies.

Between MEM 9 and 1 the unit is in set operation mode (as described in 3.5)

By pressing the **STORE** button (6) the active frequency (shown in the set mode on the 1.line) is stored on the selected memory.

3.7 Low-battery

If the battery voltage falls below 10,5V a „**B**“ will be displayed in upper left corner. A save operation of the unit can not be guaranteed.

3.8 Automatic frequency control

If the actual used frequency has an intolerable frequency drift a "-" (12) will appear in the upper right corner of the display. The transmission mode then can not be activated.

In this case the ATR 57 is not working properly and must be returned to the manufacturer.

Notice: Sometimes the "-" may be displayed, but it disappears when the frequency is changed or the device is switched off and on. This can be due to strong noise from outside the ATR 57. This is no malfunction of the ATR 57

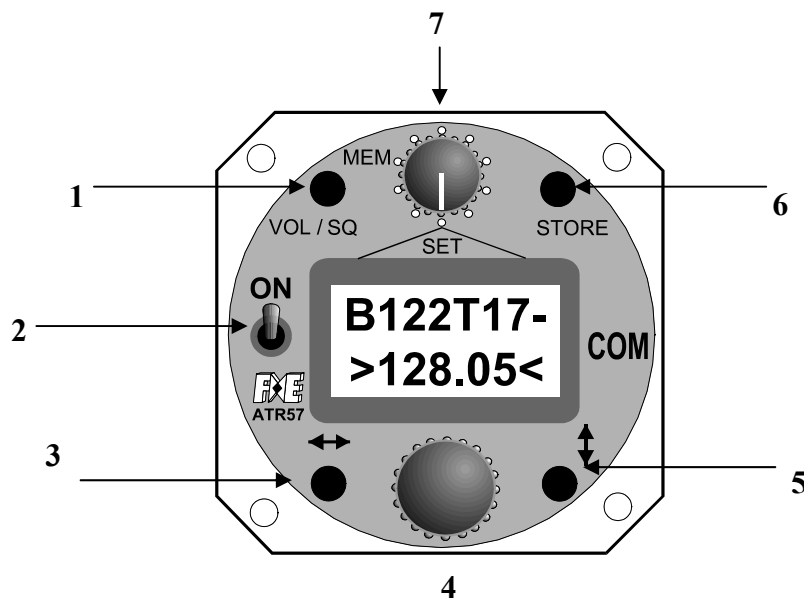
3.9 Transmission mode

By using the transmitting key (PTT), the ATR 57 will change to the transmission mode on the frequency shown on the upper position of the display. As long as the transmission takes place a "T" will be shown instead of the decimal point between the MHz- and kHz-value of the actual frequency (upper line), to control the proper function of the device. By checking the Side-tone in the headphone you have a further control for a proper transmission.

3.10 Receiving indication

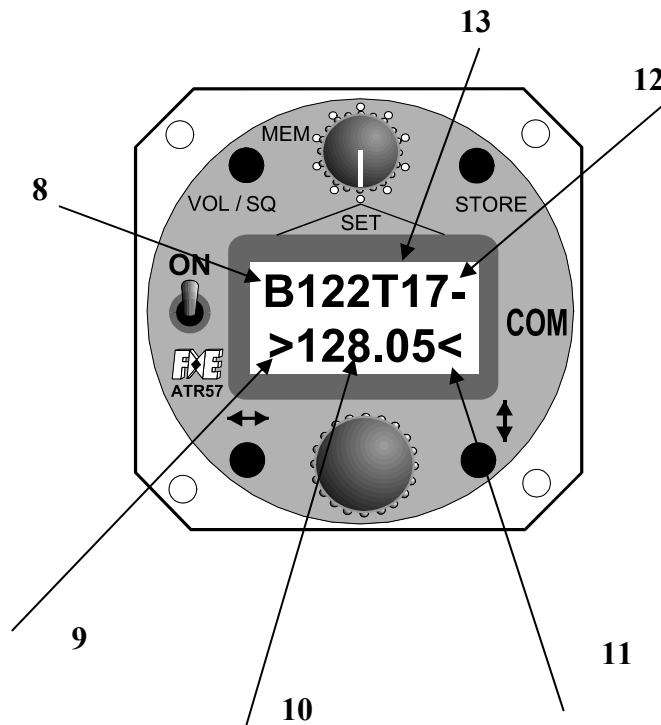
As long as a receiving signal takes place or the squelch is open a "R" will be shown instead of the decimal point between the MHz- and kHz-value of the actual frequency (upper line).

ATR 57 Operating Controls



1. Volume / Squelch/VOX button
2. ON / OFF switch
3. MHz / kHz push-button
4. Tuning-knob for Volume, Squelch, VOX and standby frequency
5. Change standby frequency to active frequency
6. **Store**-button
7. **MEM** Select stored frequency

ATR 57 Display



- 8. "B" Low-Battery display, shown when voltage is < 10,5V
- 9. "><" changing MHz or kHz range
- 10. MHz-range of standby frequency
- 11. kHz-range of standby frequency
- 12. "-" shown at lost of transmitting or receiving frequency (active frequency)
- 13. "T" shown during transmitting mode and "R" shown during receiving mode (active frequency)

CETECOM GmbH
EU-Kennnummer 0680

beliehen nach der Beleihungs- und Akkreditierungsverordnung vom Dezember 10, 1997
als Benannte Stelle der Bundesrepublik Deutschland, vertreten durch die
recognised in accordance with the Recognition and Accreditation Ordinance of 10 December 1997
as Notified Body for the Federal Republic of Germany, represented by

 **Regulierungsbehörde für
Telekommunikation und Post**

DEUTSCHE BAUMUSTERPRÜFBESCHEINIGUNG
GERMAN TYPE-EXAMINATION CERTIFICATE

Registriernummer: **F 000 129 K**
Registration No.:

Bescheinigungsinhaber: **Filser Electronic GmbH**
Certificate Holder: **Gewerbestrasse 2
D-86875 Waal**

Produktbezeichnung: **UKW-Sprechfunkanlage des Beweglichen Flugfunks (Luftfunkstelle)**
Product Designation: **Airborne VHF Receiver - Transmitter**

Produktbeschreibung: **ATR 57 COM**
Product Description:

Produkthersteller: **siehe Bescheinigungsinhaber**
Product Manufacturer: **see Certificate Holder**

Vorschrift: **Reg TP 321 ZV 034 : Juli 1998**
Specification: **EUROCAE ED-23B & EUROCAE ED-14C**

Prüfergebnis: **Das geprüfte Baumuster ist konform zu der genannten Prüfvorschrift.**
Examination Result: **The examined type is in conformity with the above-mentioned test specification.**

Diese Bescheinigung ist erstellt in Übereinstimmung mit der Telekommunikationszulassungsverordnung vom 20. August 1997 und gilt nur in Verbindung mit den nachfolgenden 2 Anlagen.
This certificate is issued in accordance with the Telecommunications Type Approval Ordinance of August 20th, 1997 and is only valid in conjunction with the following 2 annexes.

Essen, 16. Dezember 1998
Ort, Ausstellungsdatum
Place, Date of Issue


Unterzeichnet von/Signed by Volker Propach
Benannte Stelle/ Notified Body



CETECOM GmbH • Im Teelbruch 122 D-45219 Essen, Germany • Tel.: + 49 (0) 2054 / 9519-11 • Fax: + 49 (0) 2054 / 9519-88

EC-Type Approval Certificate

GRAND-DUCHE DE LUXEMBOURG

SERVICE DE L'ENERGIE
DE L'ETAT



SERVICE DE L'ENERGIE DE L'ETAT

Notified body
Organisme notifié - Notifizierte Stelle

Identification Number
No d'identification - Identifikationsnummer :

0499

EC-Type Approval Certificate

Attestation "CE de Type" / EG-Baumusterbescheinigung

according to the
conformément à - gemäß

Electromagnetic compatibility directive

Directive relative à la compatibilité électromagnétique / Richtlinie über die elektromagnetische Verträglichkeit
(89/336/EEC)

Certificate Holder:
Titulaire de l'attestation - Inhaber der Bescheinigung:

FILSER Electronic GmbH

Gewerbestraße 2
D 86875 WAAL

Manufacturer:
Constructeur - Hersteller:

FILSER Electronic GmbH

Gewerbestraße 2
D 86875 WAAL

Product Designation:
Désign. du produit - Produktheiz.:

TRANSMITTER/RECEIVER

Product identification:
*Identification du produit
Produktidentifikation:*

Emetteur/Récepteur - Funkgerät
Airborne VHF Transceiver
ATR 57 COM

This EC-Type Approval Certificate has been granted according to article 10.5 of the 89/336/EEC Directive concerning electromagnetic compatibility and its amendments. No compliance according to other EC Directives on electromagnetic compatibility and their requirements is given. Only the tested sample and the corresponding test report are covered by this EC-Type Approval Certificate, no authorization on product marking by a safety mark is given.

Registered Certificate No: 9942497-01
No du Certificat - Zertifikats Nr.:

Technical Test Report: 50613-90012
Rapport d'essais - Prüfbericht:

Luxembourg, 16.04.99

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Ecanadian Certificate



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K2H 8S2

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PHONE NO. (613)-990-5320

June 6, 2000

OUR FILE: 46327-3544
SUBMISSION: 32882A

Mr. Walter Dittel
Filser Electronics GmbH
Gewerbstrasse 2
Waal, D-86875
Germany

Dear Mr. Dittel,

We have completed the audit of the equipment listed below and are pleased to inform you that the equipment continues to meet the requirements of the Radio Standard Specification to which it has been certified.

MODEL NO.

CERTIFICATION NO.

ATR57COM

3544411112

In closing, I would like to thank you for participating in our Audit Programme. You are able to keep informed of the latest Industry Canada regulations by visiting the Bureau's site on the World Wide Web;

<http://spectrum.ic.gc.ca/deblab/english/debintre.html>
or the Industry Canada main site at;
<http://strategis.ic.gc.ca>

Yours truly,

Brian Kasper

Brian Kasper
Head EMC and Standards

cc: Mr. Steven Dayhoff, National Certification Laboratory

Canada

